Fungal Genetics Reports

Volume 26 Article 4

Additional special purpose stocks

D. D. Perkins
Stanford University

M. Björkman
Stanford University

Additional special purpose stocks

Abstract

Additional special purpose stocks

Perkins, D.D. and M. Björkman.

Additional special purpose stocks.

[The stocks and information given in this report supplement previous listings (Neurospora Newsl. 19: 30, 1972; 20:40, 1973; 24: 14, 1977)].

Linkage testers

alcoy; csp-2 A,a — FGSC Nos. 3433,3434

Conidial-separation-2 (UCLA101) marks VII, the only linkage group not previously marked in alcoy. (alcoy is described in Genetics 40: 249-252, 1969. See also Neurospora Newsl. 19: 30, 1972). Addition of csp-2 increasesefficiency for detecting linkage without any sacrificeof fertility or scorability of the other markers. csp-2 is readily scored using a "tap test" to show whether conidia fall free (Selitrennikoff et al., Genetics 78, 1974).

Tester stocks with distal markers

ro-7 rip A, a — IIL, IIR — FGSC Nos. 3467.3468

rip; dow; trp-2 A, a — IIR, IIIR, V I R — 3313,3314

The temperature-sensitive mutant rip (ribosomal protein defective; Isolation No. 4M. Loo, Neurospora Newsl. 22, 1975) has been mopped at the extreme right end of II, near but not allelic to un-15. It is readily scorable on lightly inoculated slants at 34° (no growth) vs. 25° (normal growth). As a IIR marker, rip seems superior to un-15, which it excels in vigor, growth rote, and fertility. It has therefore been substituted for un-15 in various tester strains.

The morphological mutant ro-7 (ropy; Isolation No. R2470) mops at the left end of II very near pi, to which it may be preferred as a IIL marker, since ro-7 conidiates and grows more vigorously. ro-7 is female-fertile.

cys-10 mat A , a — NL, R — FGSC Nos. 2615,2616

Although the morphological mutant mat is not as far right as uvs-2, it moy be more convenient for scoring in some marker combinations.

chol-2 ylo-1 ws-1 A, a — VIL, L, R — FGSC Nos. 3519,3520

Because ws-1 is the most distal gene marker in VIR, well right of trp-2, this combination may be preferable to chol-2 ylo-1 trp-2. Linkage is scored among the progeny from black ascospores, which are mostly ws^+. Efficiency is decreased slightly because a few percent of m-1 ascospores darken on aging so as to resemble ws^+ and be capable of germinating.

(Note: In Neurospora Newsl. 20, 1973, ocr-7 was listed incorrectly as a distal VIR marker. The supposed linkage in VI could not be confirmed, and map location of ocr-7 is still unknown.)

Microconidiating strains

fl; dn A, a	IIR; IVR	FGSC Nor. 3517,3518
pe fl A, a	IIR	3072,3073

Substituting dingy for peach results in full fertility (see note by Perkins in this issue). The listed pe fl stocks ore the improved strains described by Munkres in Neurospora Newrl. 24, 1977.

Strains with macroconidia that don't become airborne

csp-2 A, a	(UCLA101) VII	FGSC Nor. 2525,2526
csp-1 A, a	I	2554,2555
eas A, a	IIR	2960,2961

There mutants, described by Selitrennikoff et al. (Neurospora Newsl. 21, 1974; Genetics 78, 1974; Neurospora Newsl. 23, 1976), have been designated for use when Neurospora is employed as an HV1 system under revised NIH Guidelines for Research Involving Recombinant DNA Molecules (December 1978). (See Fed. Register& No.71, p.21730, April 11, 1979.) They should also be well suited for teaching purposes. Conidial separation-1 was mopped right of org-3 in I by Seltirennikoff et al. Our data show it to be left of centromere, based on coverage by duplications from T(IL → II)39311. Selitrennikoff et al. mapped csp-2 left of wc in VII. Our data show *O/b8* recombination with thi-3 in VIIL. Linkage of eas (easily wettable) in IIR has been confirmed; it is near fl, trp-3 and rip. The failure of ear conidia to become airborne, and their wettability, ore related to a complete absence of rodlets (Beever and Dempsey, Nature 272, *1978).*

We find that all crosses where eas is heterozygous or homozygous produce a class of sick progeny that grow slowly or barely germinate. Cause of the abnormality is not known; there is no evidence of aneuploidy or chromosome aberration.

Another autonomous armspore-color mutant

cyr-3 A, a	[NM27(t)]	FGSC Nor. 2292.1272

cys-3 ascospores foil to pigment. Probably superior in scoring to most or all known Neurospora "white ascospore" mutants, including asco.

Strains for demonstrating a sex-limited trait, perithecial color

fl; per-I al-3 A, a	(per-I = AR174)	FGSC Nor. 3119,3120
fl; per-1 A, a	(per-I = PBJ1)	3311,3312
per-I A, a	(per-I = PBJI)	3309.3310

Perithecial walls are devoid of black pigment in crosses of per-I X per^+ when the mutant is used as protoperithecial parent, but not when it is used as fertilizing parent (Howe and Johnson, 1976 Genetics 82). The so-called maternal effect is most readily seen in reciprocally fertilized crosses of fl; per-I X fl; per^+, where presence of fluffy ensures that perithecia are not obscured by conidia. The fl; per-I strains above hove been made for this purpose. The per- perithecia ore seen in greater contrast when the female parent has albino mycelia. Standard fluffy testers (FGSC #3249,3250), wild types (#2489, 2490), or various albinos are all suitable for use as per^+ parents.

Improved fluffy testers

fl A, a	(allele P)	FGSC Nor. 3249,3250

These fluffy strains were obtained by 0. M. Mylyk by at least seven recurrent backcrosses to the new isogenic OR wild types described by Mylyk et al. (Neurospora Newsl. 1974 21: 24, FGSC Nor. 2489, 2490). There stacks are all uniform in rate of growth and protoperithecium formation, female fertility, and sex-linked resistance to triphenyl-tetrazolium chloride, and all have the some heterokaryon compatibility genotype. Some of the previously used fl and wild type stocks, listed in Neurospora Newsl. 19, 1972, differed with respect to there traits. - - - Department of Biological Sciences, Stanford University, Stanford, CA 94305.